

Statement of Basis

**Permit to Construct No. P-2011.0040
Project ID 61683**

**The Amalgamated Sugar Company LLC - Paul
Paul, Idaho**

Facility ID 067-00001

Proposed for Public Comment

**DRAFT XX, 2017
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The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01. et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
Btu	British thermal units
CAA	Clean Air Act
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	CO ₂ equivalent emissions
CSB	Concentrated separator byproduct
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
hr/yr	hours per consecutive 12 calendar month period
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
O ₂	oxygen
PC	permit condition
PM	particulate matter
PM _{2.5}	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
<i>Rules</i>	<i>Rules for the Control of Air Pollution in Idaho</i>
scf	standard cubic feet
SCL	significant contribution limits

SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO ₂	sulfur dioxide
SO _x	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TASCO	The Amalgamated Sugar Company LLC
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
yd ³	cubic yards
µg/m ³	micrograms per cubic meter

FACILITY INFORMATION

Description

The Amalgamated Sugar Company LLC - Paul (TASCO) operates an existing beet sugar manufacturing plant that processes sugar beets into refined sugar, which is located in Paul, Idaho. The facility is also known as the Mini-Cassia Facility. Sugar beet processing operations consist of several steps, including diffusion, juice purification, evaporation, crystallization, molasses sugar recovery, and dried pulp manufacturing.

Prior to removing sucrose from sugar beets by diffusion, the cleaned and washed beets are sliced into long, thin strips called cossettes. In the diffusion step, the cossettes are conveyed to a continuous diffuser, in which hot water is used to extract sucrose. The sugar-enriched water that flows from the outlet of the diffuser is called “raw juice” and contains between 13% to 18% sugar. The raw juice proceeds to the juice purification operation. The processed cossettes, or pulp, leaving the diffuser is conveyed to the dried pulp manufacturing operation.

In the juice purification step, non-sucrose impurities in the raw juice are removed so that the pure sucrose can be crystallized. First, the juice passes through screens to remove any small cossette particles. The juice is then heated to 80-85°C (176-185°F) and proceeds to the liming system. In the liming system tank, milk of lime [$\text{Ca}(\text{OH})_2$ aqueous solution] is added to the juice to absorb or adhere to the impurities. The juice is then sent to the first carbonation tank, where carbon dioxide (CO_2) gas is bubbled to precipitate the lime as insoluble calcium crystals. The lime kiln is used to produce the CO_2 and the lime, which are both used in carbonation; the lime is converted to milk of lime in a lime slaker. After filtration, the juice is softened. Then a small amount of sulfur dioxide (SO_2) is added to the juice to inhibit reactions that lead to darkening of the juice. Burning elemental sulfur in a sulfur stove produces the SO_2 . Following the addition of SO_2 , the juice (known as “thin juice”) proceeds to the evaporators.

In the evaporation step, the sucrose in the juice is concentrated by removing water in a series of evaporators. Steam from boilers heats the first evaporator, and the steam from the water evaporated in the first evaporator heats the second evaporator, and so on through the final evaporator. After evaporation, the percentage of sucrose in the thick juice is 65% to 75%. Some of this thick juice is sent to storage tanks. Most of the thick juice is combined with crystalline sugars produced later in the process and dissolved in the high melter. The mixture is then filtered, yielding a clear liquid known as standard liquor, which proceeds to the crystallization operation.

In the crystallization step, sugar is crystallized by low-temperature pan boiling. The standard liquor is boiled in vacuum pans until it becomes supersaturated. To begin crystal formation, the liquor is “seeded” with finely milled sugar. When the crystals reach the desired size, the mixture of liquor and crystals, known as massecuite or fillmass, is discharged to the mixer. From the mixer, the massecuite is poured into high-speed centrifuges, in which the liquid is centrifuged into the outer shell, and the crystals are left in the inner centrifugal basket. The sugar crystals are washed with pure hot water, and then sent to the granulator/cooling system. After cooling, the sugar is screened and then either packaged or stored in large silos for future packaging. The liquid that was separated from the sugar crystals in the centrifuges is called syrup. This syrup is feed liquor for the second boiling step and is introduced back into a second set of vacuum pans. The crystallization/centrifugation process is repeated once again, resulting in the production of molasses.

In the molasses sugar recovery step, the molasses produced in the third boiling step can be used in the production of livestock feed. This molasses can be further desugarized using a separator process. However, the Mini Cassia facility does not have a separator so molasses is shipped to other factories for separation. The products of the separator process are “extract” (the high sugar fraction) and – “concentrated separator by product” (CSB, the low sugar fraction). The extract can be stored in tanks or immediately processed in the sugar operation, like thick juice. CSB can be used in the liquid form as livestock feed or can be added to the pulp.

In the dried pulp manufacturing step, wet pulp from the diffusion process is mechanically pressed to reduce the moisture content from about 95% to 75%. After pressing, the pulp can be sold as cattle feed or sent to the dryers. Before entering the rotary drum dryers, CSB or molasses is added to the pressed pulp. The pressed pulp is then dried by hot air in horizontal rotating drums known as pulp dryers. The pulp dryers can be fired by natural gas or coal. The dried pulp product is typically pelletized, but can be sold as livestock feed in both pelletized and unpelletized form.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

March 19, 1981	13-1020-0001-00, Air pollution source permit which established requirements for the boilers, Permit status (S)
January 1, 1984	1020-0001, Permit revision which established requirements for the pulp dryers, Permit status (S)
September 23, 2002	P-020407, PTC modification to add No. 6 evaporator and establish throughput limits, Permit status (S)
December 12, 2002	T1-9503-039-1, Initial T1 operating permit, Permit status (S)
February 3, 2005	P-050401, Revised PTC to replace the sugar production limit with a steady production limit, Permit status (S)
July 27, 2005	P-050406, Initial PTC for the Nebraska Boiler (backup), Permit status (A)
September 23, 2005	T1-030416, Renewal and administrative amendment T1 to incorporate compliance schedule and revisions resulting from an appeal, Permit status (S)
November 17, 2005	P-050424, Initial PTC to add temporary emergency generator, Permit status (T) (terminated)
December 15, 2005	P-050421, Revised PTC to increase daily throughput limit, Permit status (S)
June 14, 2006	P-060404, Revised PTC to increase annual throughput limit, Permit status (S)
May 16, 2007	P-2007.0023, Revised PTC to temporarily increase steam production in 2006, Permit status (S)
September 22, 2010	P-2010.0043, Initial PTC to replace lime kiln system, Permit status (S)
March 8, 2011	P-2011.0040, Revised PTC to revise campaign year definition, Permit status (S)
June 1, 2012	P-2011.0043, Revised PTC to revise slaker control equipment, Permit status (S)
June 11, 2012	P-2011.0040, Revised PTC to increase annual throughput and steaming rate limits, Permit status (S)
March 18, 2014	P-2011.0043, Revised PTC to remove slaker control equipment, Permit status (A)
August 13, 2014	P-2011.0040, Revised PTC to convert boilers to natural gas firing only and to establish limits to resolve a historic equipment review required by T1-030416 compliance schedule, Permit status (A, but will become S upon issuance of this permit)
October 15, 2014	T1-050414, Renewal T1 to incorporate CAM and PTC revisions, Permit status (A)

Application Scope

This PTC is for a modification at an existing Tier I facility.

The applicant has proposed to:

- Increase the daily and annual beet slice throughput limits;
- Eliminate the annual boiler steam production limit; and
- Install a new juice storage tank.

Application Chronology

March 23, 2016	DEQ received an application and an application fee.
April 6, 2016	DEQ determined that the application was incomplete.
April 14, 2016	DEQ received supplemental information from the applicant.
May 13, 2016	DEQ determined that the application was complete.
August 2, 2016	DEQ and TASCOT entered into a consent order in order for TASCOT to operate and not be in violation of P-2011.0040 issued August 13, 2014.
September 27, 2016	DEQ received an addendum to the application addressing consent order condition 18.A.
December 14, 2016	DEQ made available the draft permit and statement of basis for peer and regional office review.
December 21, 2016	DEQ made available the draft permit and statement of basis for applicant review.
March 13 – April 12, 2017	DEQ provided a public comment period on the proposed action.
January 17, 2017	DEQ received the permit processing fee.
Month Day, Year	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source Description		Control Equipment	Installation Date
<u>B&W Boiler (S-B1)</u>		None	1952
Operational capacity:	175,000 lb/hr steam		
Fuel:	natural gas		
<u>Erie City Boiler (S-B2)</u>		None	1964
Operational capacity:	250,000 lb/hr steam (gas)		
Fuel:	natural gas		
<u>Nebraska Boiler (S-B3, Backup Boiler Only)</u>		None	2005
Operational capacity:	200,000 lb/hr steam		
Fuel consumption:	250 MMBtu/hr		
Fuels:	natural gas		
<u>North Pulp Dryer (S-D2)</u>		Dryer exhaust is split between two cyclones (A-D2A) that operate in parallel. Cyclone exhaust is D2A) that operate in parallel. Cyclone exhaust is combined and then split between two Spray-Impingement Scrubbers (A-D2B) that operate in parallel.	1969
PW input rate:	56.9 T/hr		
Coal consumption:	5.7 T/hr		
Fuels:	coal and/or natural gas		

Source Description	Control Equipment	Installation Date
<u>South Pulp Dryer (S-D1)</u> PW input rate: 48.5 T/hr Coal consumption: 4.9 T/hr Fuels: coal and/or natural gas	Dryer exhaust is split between two cyclones (A-D1A) that operate in parallel. Cyclone exhaust is combined and then split between two Spray-Impingement Scrubbers (A-D1B) that operate in parallel.	1961
<u>Pellet Cooler No. 1 (S-D3)</u> Manufacturer/Model: California Pellet Mill/2GA3 PW input rate: 7.5 T/hr	Cyclone (A-D3)	Pre 1970
<u>Pellet Cooler No. 2 (S-D4)</u> Manufacturer/Model: California Pellet Mill/2GA3 PW input rate: 7.5 T/hr	Cyclone (A-D4/5)	Pre 1970
<u>Pellet Cooler No. 3 (S-D5)</u> Manufacturer/Model: California Pellet Mill/2GA3 PW input rate: 7.5 T/hr		1974
<u>Lime Kiln (S-K1)</u> Manufacturer: Eberhardt Model: KR 8.0 (forced draft, vertical) Manufacture date: 2011 Maximum capacity: 770 T/day lime rock Maximum operation: 146,300 T/yr lime rock Fuel: anthracite coal and/or coke Fuel consumption: 55.2 T/day, 59 MMBtu/hr	Gas Washer First Carbonation Tank Second Carbonation Tank (A-K1)	2012
<u>Process Slaker (S-K2) – Eberhardt Process</u> Manufacturer: May Foundry Model: Eberhardt KR 8.0 Manufacture date: 2011 Maximum capacity: 394 T/day CaO Maximum operation: 74,860 T/yr CaO	None	2012
<u>Drying Granulator (S-W1)</u> Operational capacity: 73 T/hr wet sugar	Scrubber (A-W1)	Pre 1952
<u>Cooling Granulator No. 1 (S-W2)</u> Operational capacity: 73 T/hr wet sugar	Baghouse (A-W2)	Pre 1952
<u>Cooling Granulator No. 2 (S-W3)</u> Manufacturer/Model: BMA FCP 16/6/6 Operational capacity: 85 T/hr wet sugar	Baghouse (A-W3)	2012
Process Sugar Handling System (S-W4)	Process Sugar Baghouses (A-W4)	1967
Bulk Loadout Sugar Handling System (S-W5)	Bulk Loadout Baghouses (A-W5)	1994

Emissions Inventories

Potential to Emit

Emission inventories provided in the application included emissions of federally regulated criteria pollutants and greenhouse gases, and state-regulated toxic air pollutants (TAP).

Summaries of these emission inventories are provided below and in Appendix A.

Actual-to-Projected-Actual Emissions

For this project, projected annual emissions from the B&W and Erie City boilers, main mill vent, and sulfur stove are expected to increase and are based on a beet campaign and juice run of 340 days. Increasing the maximum daily beet slice limit will not require any change to the capacity of the boilers to produce steam. As summarized in Table 2, upon completion of the beet slice increase project, criteria pollutant emissions are expected to increase. The emission increases are not expected to exceed the significant thresholds; therefore, the beet slice increase project would not be applicable to PSD program requirements.

The permittee has elected to use 2015-2016 for the baseline year (Table 2) as this is the only time period when natural gas was used as the sole fuel source for the boilers. Refer to the PSD Classification (40 CFR 52.21) section for additional information.

Table 2 BEET SLICE INCREASE PROJECT EMISSION INCREASES

Description	CO ^(b) T/yr ^(d)	NO _x ^(b) T/yr ^(d)	SO ₂ ^(b) T/yr ^(d)	PM ^{(a)(b)} T/yr ^(d)	VOC ^(b) T/yr ^(d)	CO ₂ ^(c) T/yr ^(d)
Baseline Actual Emissions ^(e)	108.9	227.6	0.84	10.1	7.3	163,910
Projected Actual Emissions ^(e)	128.3	267.0	2.09	11.9	22.0	193,279
Emission Increases ^(f)	19.4	39.4	1.25	1.8	14.7	29,369
Significance Thresholds ^(f)	100	40	40	15	40	75,000

- a) PM, PM₁₀, and PM_{2.5} emissions were estimated to be equivalent; significance threshold listed is for PM_{2.5}, the most stringent threshold when applying assumption.
- b) Regulated NSR Pollutant as defined in 40 CFR 52.21(b)(50).
- c) Tons of CO₂ equivalent emissions as defined in 40 CFR 52.21(b)(49).
- d) Tons per "campaign year," as defined in Permit Condition 2.1.
- e) Baseline and Projected Actual Emissions estimates include the B&W and Erie City Boilers, the main mill vent, and sulfur stove. Baseline actual emissions used were actual emissions during the campaign years 2015-2016.
- f) Net emission increase and significant net emission increase thresholds as determined in accordance with 40 CFR §52.21(b)(40), 40 CFR 52.21(b)(23), and 40 CFR 52.21(b)(3)(i).

The beet slice increase project is therefore not expected to result in a PSD significant net emission increase. Baseline Actual Emissions (BAE) and Projected Actual Emissions (PAE) were determined using New Source Review (NSR) Prevention of Significant Deterioration (PSD) procedures and definitions set forth in 40 CFR 52.21(a)(2)(iv)(c) and 40 CFR 52.21(b).

Toxic Air Pollutant Emissions Increases

As summarized in Table 3, upon completion of the beet slice increase of 352,000 T/yr, no apparent increase in state-regulated toxic air pollutants (TAP) is expected, with the exception of acetaldehyde, formaldehyde, and ammonia. Although acetaldehyde, formaldehyde, and ammonia were estimated to exceed the emission screening level (EL), the applicant has demonstrated preconstruction compliance with TAP standards in accordance with IDAPA 58.01.01.210.

Table 3 TOXIC AIR POLLUTANTS EMISSION INCREASES

Toxic Air Pollutants	Carb Tank#1	Carb Tank #2	Evaporator Vent	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Acetaldehyde	6.86E-02	1.06E-01	1.76E-03	1.76E-01	3.0E-03	Yes
Formaldehyde	7.43E-04	8.40E-04	3.23E-05	1.62E-03	5.1E-04	Yes
Ammonia				53.5	1.2	Yes

Post Project HAP Emissions

Estimated hazardous air pollutant (HAP) emissions are expected to increase as a result of this permit revision request, including emissions of acetaldehyde and formaldehyde as provided above. The facility will remain classified as a major source of HAP emissions following this project (refer to the Title V Classification section for additional information concerning facility classification).

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission rates of acetaldehyde, formaldehyde, and ammonia from this project exceeded applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline¹. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP). A summary of the Ambient Air Impact Analysis for TAP is provided in Appendix A.

An ambient air quality impact analyses document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action (see Appendix B).

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Minidoka County, which is designated as attainment or unclassifiable for PM_{2.5}, PM₁₀, SO₂, NO₂, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

- A = Use when any one HAP has actual or potential emissions ≥ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions ≥ 25 T/yr.
- SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits ≥ 8 T/yr of a single HAP or ≥ 20 T/yr of THAP.
- SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to < 8 T/yr of a single HAP and/or < 20 T/yr of THAP.
- B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold
- UNK = Class is unknown

For All Other Pollutants:

- A = Actual or potential emissions of a pollutant are ≥ 100 T/yr.
- SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are ≥ 80 T/yr.
- SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are < 80 T/yr.

¹ Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

B = Actual and potential emissions are < 100 T/yr without permit restrictions.
 UNK = Class is unknown.

Table 4 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	241.5	100	A
PM ₁₀ /PM _{2.5}	257.6	100	A
SO ₂	127.5	100	A
NO _x	856.0	100	A
CO	2904.8	100	A
VOC	163.9	100	A
HAP (single)	88.68	10	A
HAP (Total)	107.48	25	A

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the modification. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301 Requirement to Obtain Tier I Operating Permit

The Amalgamated Sugar Company LLC (TASCO – Paul) is classified as a major facility as defined in IDAPA 58.01.01.008.10:

- The facility emits or has the potential to emit a regulated air pollutant in an amount greater than or equal to 100 T/yr;
- The facility emits or has the potential to emit a single regulated HAP in excess of 10 T/yr;
- The facility emits or has the potential to emit a combination of regulated HAP in excess of 25 T/yr.

Amalgamated Sugar (TASCO – Paul) has a fossil-fuel boiler (or combination thereof) of more than 250 MMBtu/hr heat input; therefore the boiler house (which includes the B&W Boiler, Erie City Boiler, and Nebraska Boiler) was classified as a designated facility as defined in IDAPA 58.01.01.006.30 and 40 CFR 52.21(b)(1)(i)(a), and fugitive emissions are required to be included when determining the major facility classification in accordance with IDAPA 58.01.01.008.10.c.i, and when determining project net emissions increases in accordance with IDAPA 58.01.01.007 and 40 CFR 52.21(b)(48)(ii).

This PTC was processed in accordance with IDAPA 58.01.01.209.05.c; the applicable requirements contained in this PTC will be incorporated into the Tier I operating permit pursuant to IDAPA 58.01.01.300–399.

Refer to Appendix A for a summary of the regulated air pollutant emission estimates provided in the application.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 Prevention of Significant Deterioration of Air Quality

Because the facility boiler house steam plant (which includes the B&W Boiler, Erie City Boiler, and Nebraska Boiler) has a fossil-fuel boiler (or combination thereof) of more than 250 MMBtu/hr heat input, the boiler house was classified as a designated facility as defined in IDAPA 58.01.01.006.30 and in 40 CFR 52.21(b)(1)(i)(a), and fugitive emissions are required to be included when determining the major facility classification in accordance with IDAPA 58.01.01.008.10.c.i, and when determining project net emissions increases in accordance with IDAPA 58.01.01.007 and 40 CFR 52.21(b)(48)(ii).

The boiler house and the facility are classified as an existing major stationary source as defined in 40 CFR 52.21(b), because the boiler house emits and the facility emits or has the potential to emit criteria pollutants in an amount greater than 100 T/yr (and greater than 250 T/yr).

IDAPA 58.01.01.205..... PERMIT REQUIREMENTS FOR NEW MAJOR FACILITIES OR MAJOR MODIFICATIONS IN ATTAINMENT OR UNCLASSIFIABLE AREAS.

40 CFR 52.21 Prevention of significant deterioration of air quality.

40 CFR 52.21(a)(2) Applicability procedures.

In accordance with §52.21(a)(2)(i), Prevention of Significant Deterioration (PSD) requirements apply to the construction of any new major stationary source or any project at an existing major stationary source in an area designated as attainment or unclassifiable.

This permit revision request was proposed for an existing major stationary source in an area designated as attainment or unclassifiable (refer to the Attainment Designation (40 CFR 81.313) section for additional information).

In accordance with §52.21(a)(2)(ii), the requirements of §52.21(j) through (r) apply to the construction of any new major stationary source or the major modification of any existing major stationary source, except as otherwise provided.

This permit revision was not considered a major modification as defined in §52.21(b)(2)(i), because it was not predicted to result in a significant net emissions increase as determined in accordance with §52.21(b)(40). The net emissions increases resulting from this permitting action were predicted to be less than the significant levels as defined in §52.21(b)(23)(i) and as provided above in Table 2.

Except as provided below, §52.21(j) through (r)(5) were not determined to be applicable to this project. Additional information concerning this determination is provided in the paragraphs below regarding the emissions increase and net emissions increase calculations.

Emissions increase

In accordance with §52.21(a)(2)(iv)(a), except as otherwise provided, a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases—a significant emissions increase (as defined in §52.21(b)(40)), and a significant net emissions increase (as defined in §52.21(b)(3) and (b)(23)).

As provided in Table 2, this permitting action was not predicted to cause a significant emissions increase or a significant net emissions increase.

In accordance with §52.21(a)(2)(iv)(b), the procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to §52.21(a)(2)(iv)(c) through (f). For these calculations, fugitive emissions (to the extent quantifiable) are included only if the emissions unit is part of one of the source categories listed in paragraph §52.21(b)(1)(iii) or if the emission unit is located at a major stationary source that belongs to one of the listed source categories. Fugitive emissions are not included for those emissions units located at a facility whose primary activity is not represented by one of the source categories listed in paragraph §52.21(b)(1)(iii) and that are not, by themselves, part of a listed source category. The procedure for calculating (before beginning actual construction) whether a significant net emissions increase will occur at the major

stationary source (i.e., the second step of the process) is contained in the definition in §52.21(b)(3). Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.

The emissions units which were evaluated are part of a listed source category in §52.21(b)(1)(iii), and fugitive emissions were included in the emissions increase estimates. In accordance with §52.21(a)(2)(iv)(c), the actual-to-projected actual test was used for this project because it involves existing emissions units. A significant emissions increase of a regulated NSR pollutant is not expected. The sum of the difference between projected actual emissions (as defined in §52.21(b)(41) and baseline actual emissions (as defined in §52.21(b)(48) for this permitting action did not equal or exceed pollutant significance thresholds as defined in §52.21(b)(23) and as provided in Table 2.

TASCO has elected to use actual production data from the period that includes the 2015-2016 beet processing campaign for the purposes of determining baseline actual emissions of all regulated NSR pollutants.

Reasonable Possibility Standard

In accordance with §52.21(r)(6), except as otherwise provided in paragraph (r)(6)(vi)(b) of this section, the provisions of this paragraph (r)(6) apply with respect to any regulated NSR pollutant emitted from projects at existing emissions units at a major stationary source (other than projects at a source with a PAL) in circumstances where there is a reasonable possibility, within the meaning of paragraph (r)(6)(vi) of this section, that a project that is not a part of a major modification may result in a significant emissions increase of such pollutant, and the owner or operator elects to use the method specified in paragraphs (b)(41)(ii)(a) through (c) of this section for calculating projected actual emissions.

Because NSR pollutant emission increases were not estimated to exceed applicable significance thresholds as shown in Table 2, a “reasonable possibility” of exceeding significant thresholds is not anticipated.

NSPS Applicability (40 CFR 60)

The Nebraska boiler installed at the facility in 2005 is subject to 40 CFR 60 Subpart Db requirements.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

MACT Applicability (40 CFR 63)

The facility boilers (B&W Boiler, Erie City Boiler, and Nebraska Boiler) are subject to the requirements of 40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (“Boiler MACT”), because they are industrial boilers located at a major source of HAP. TASCO-Paul is classified as a major source of HAP; refer to the Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70) section for additional information concerning facility classification. DEQ is delegated this Subpart.

The applicability analysis provided below addresses the boilers that comprise the beet slice increase project.

40 CFR 63, Subpart DDDDD..... National Emission Standards for Hazardous Air Pollutants for
Major Sources: Industrial, Commercial, and Institutional Boilers
and Process Heaters

§ 63.7480 What is the purpose of this subpart?

In accordance with §63.7480, this subpart establishes national emission limitations and work practice standards for hazardous air pollutants (HAP) emitted from industrial, commercial, and institutional boilers and process heaters located at major sources of HAP. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and work practice standards.

§ 63.7485 Am I subject to this subpart?

In accordance with §63.7485, you are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP, except as specified in §63.7491. For purposes of this subpart, a major source of HAP is as defined in §63.2, except that for oil and natural gas production facilities, a major source of HAP is as defined in §63.7575.

Because the permittee owns and operates industrial boilers at a major source of HAP and which are not specified under §63.7491, the requirements of this subpart are applicable.

§ 63.7490 What is the affected source of this subpart?

(a) This subpart applies to new, reconstructed, and existing affected sources as described in paragraphs (a)(1) and (2) of this section.

(1) The affected source of this subpart is the collection at a major source of all existing industrial, commercial, and institutional boilers and process heaters within a subcategory as defined in §63.7575.

(2) The affected source of this subpart is each new or reconstructed industrial, commercial, or institutional boiler or process heater, as defined in §63.7575, located at a major source.

(b) A boiler or process heater is new if you commence construction of the boiler or process heater after June 4, 2010, and you meet the applicability criteria at the time you commence construction.

(c) A boiler or process heater is reconstructed if you meet the reconstruction criteria as defined in §63.2, you commence reconstruction after June 4, 2010, and you meet the applicability criteria at the time you commence reconstruction.

(d) A boiler or process heater is existing if it is not new or reconstructed.

(e) An existing electric utility steam generating unit (EGU) that meets the applicability requirements of this subpart after the effective date of this final rule due to a change (e.g., fuel switch) is considered to be an existing source under this subpart.

The permittee owns and operates existing industrial boilers.

§ 63.7491 Are any boilers or process heaters not subject to this subpart?

The types of boilers and process heaters listed in paragraphs (a) through (n) of this section are not subject to this subpart.

(a) An electric utility steam generating unit (EGU) covered by subpart UUUUU of this part or a natural gas-fired EGU as defined in subpart UUUUU of this part firing at least 85 percent natural gas on an annual heat input basis.

(b) A recovery boiler or furnace covered by subpart MM of this part.

(c) A boiler or process heater that is used specifically for research and development, including test steam boilers used to provide steam for testing the propulsion systems on military vessels. This does not include units that provide heat or steam to a process at a research and development facility.

(d) A hot water heater as defined in this subpart.

(e) A refining kettle covered by subpart X of this part.

(f) An ethylene cracking furnace covered by subpart YY of this part.

(g) Blast furnace stoves as described in EPA-453/R-01-005 (incorporated by reference, see §63.14).

(h) Any boiler or process heater that is part of the affected source subject to another subpart of this part, such as boilers and process heaters used as control devices to comply with subparts JJJ, OOO, PPP, and U of this part.

(i) Any boiler or process heater that is used as a control device to comply with another subpart of this part, or part 60, part 61, or part 65 of this chapter provided that at least 50 percent of the average annual heat input during any 3 consecutive calendar years to the boiler or process heater is provided by regulated gas streams that are subject to another standard.

(j) Temporary boilers and process heaters as defined in this subpart.

(k) Blast furnace gas fuel-fired boilers and process heaters as defined in this subpart.

(l) Any boiler or process heater specifically listed as an affected source in any standard(s) established under section 129 of the Clean Air Act.

(m) A unit that burns hazardous waste covered by Subpart EEE of this part. A unit that is exempt from Subpart EEE as specified in §63.1200(b) is not covered by Subpart EEE.

(n) Residential boilers as defined in this subpart.

Because the permittee owns and operates industrial boilers at a major source of HAP and which are not specified under §63.7491, the requirements of this subpart are applicable.

§ 63.7495 When do I have to comply with this subpart?

(a) If you have a new or reconstructed boiler or process heater, you must comply with this subpart by April 1, 2013, or upon startup of your boiler or process heater, whichever is later.

(b) If you have an existing boiler or process heater, you must comply with this subpart no later than January 31, 2016, except as provided in §63.6(i).

(c) If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, paragraphs (c)(1) and (2) of this section apply to you.

(1) Any new or reconstructed boiler or process heater at the existing source must be in compliance with this subpart upon startup.

(2) Any existing boiler or process heater at the existing source must be in compliance with this subpart within 3 years after the source becomes a major source.

(d) You must meet the notification requirements in §63.7545 according to the schedule in §63.7545 and in subpart A of this part. Some of the notifications must be submitted before you are required to comply with the emission limits and work practice standards in this subpart.

(e) If you own or operate an industrial, commercial, or institutional boiler or process heater and would be subject to this subpart except for the exemption in §63.7491(l) for commercial and industrial solid waste incineration units covered by part 60, subpart CCCC or subpart DDDD, and you cease combusting solid waste, you must be in compliance with this subpart and are no longer subject to part 60, subparts CCCC or DDDD beginning on the effective date of the switch as identified under the provisions of §60.2145(a)(2) and (3) or §60.2710(a)(2) and (3).

(f) If you own or operate an existing EGU that becomes subject to this subpart after January 31, 2016, you must be in compliance with the applicable existing source provisions of this subpart on the effective date such unit becomes subject to this subpart.

(g) If you own or operate an existing industrial, commercial, or institutional boiler or process heater and would be subject to this subpart except for an exemption in §63.7491(i) that becomes subject to this subpart after January 31, 2013, you must be in compliance with the applicable existing source provisions of this subpart within 3 years after such unit becomes subject to this subpart.

(h) If you own or operate an existing industrial, commercial, or institutional boiler or process heater and have switched fuels or made a physical change to the boiler or process heater that resulted in the applicability of a different subcategory after the compliance date of this subpart, you must be in compliance with the applicable existing source provisions of this subpart on the effective date of the fuel switch or physical change.

(i) If you own or operate a new industrial, commercial, or institutional boiler or process heater and have switched fuels or made a physical change to the boiler or process heater that resulted in the applicability of a different subcategory, you must be in compliance with the applicable new source provisions of this subpart on the effective date of the fuel switch or physical change.

In accordance with §63.7491(b), because the boilers are existing boilers, the compliance deadline is January 31, 2016 (unless an extension is pursued in accordance with §63.6(i)).

§ 63.7499 What are the subcategories of boilers and process heaters?

The subcategories of boilers and process heaters, as defined in §63.7575 are:

- (a) Pulverized coal/solid fossil fuel units.*
- (b) Stokers designed to burn coal/solid fossil fuel.*
- (c) Fluidized bed units designed to burn coal/solid fossil fuel.*
- (d) Stokers/sloped grate/other units designed to burn kiln dried biomass/bio-based solid.*
- (e) Fluidized bed units designed to burn biomass/bio-based solid.*
- (f) Suspension burners designed to burn biomass/bio-based solid.*
- (g) Fuel cells designed to burn biomass/bio-based solid.*
- (h) Hybrid suspension/grate burners designed to burn wet biomass/bio-based solid.*
- (i) Stokers/sloped grate/other units designed to burn wet biomass/bio-based solid.*
- (j) Dutch ovens/pile burners designed to burn biomass/bio-based solid.*
- (k) Units designed to burn liquid fuel that are non-continental units.*
- (l) Units designed to burn gas 1 fuels.*
- (m) Units designed to burn gas 2 (other) gases.*
- (n) Metal process furnaces.*
- (o) Limited-use boilers and process heaters.*
- (p) Units designed to burn solid fuel.*
- (q) Units designed to burn liquid fuel.*
- (r) Units designed to burn coal/solid fossil fuel.*
- (s) Fluidized bed units with an integrated fluidized bed heat exchanger designed to burn coal/solid fossil fuel.*
- (t) Units designed to burn heavy liquid fuel.*
- (u) Units designed to burn light liquid fuel.*

In accordance with §63.7499(l), the B&W and Erie City boilers are existing boilers designed to burn Class 1 fuels (natural gas).

A complete analysis of NESHAP Subpart DDDDD will be included and incorporated into the Tier I operating permit.

Permit Conditions Review

This section describes only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Permit Condition 2.2 was revised to reflect that the new daily throughput of beets shall be 21,550 tons per day based on emission estimates and modeling provided by the Applicant.

Permit Condition 2.3 was revised to reflect that the new annual throughput of beets shall be 3,852,000 tons per campaign year based on emission estimates and modeling provided by the Applicant.

Existing Permit Conditions 2.5 and 2.6 were removed because the boilers are no longer capable of firing coal and therefore the boiler steam production limit is obsolete.

Existing Permit Conditions 2.7 through 2.9 were removed. In letters dated February 23, 2015 and April 24, 2015, the permittee provided notification to DEQ that the coal burners and coal delivery systems for the boilers have been removed.

Existing Permit Condition 2.10 was removed because the performance test for CO on the B&W Boiler was completed in February of 2016.

Existing Permit Conditions 2.13 and 2.14 were removed because the boilers no longer fire coal and the monitoring was required only through calendar year 2016.

Permit Condition 2.5 was revised to reflect updated language to clarify that any future New Source Review applicability determinations shall not use coal emissions under the PSD program.

New Permit Condition 3.1 describes the process for which the boilers are used.

New Permit Condition 3.2 describes the control devices for the existing boilers.

New Permit Condition 3.3 describes the annual emission limits for the B&W and Erie City Boilers. These emission limits were incorporated for PSD avoidance.

New Permit Condition 3.4 ensures that the opacity of the boiler stacks does not exceed 20%.

New Permit Condition 3.5 limits the boilers to combust natural gas only. This permit condition replaces a portion of existing Permit Condition 2.7.

New Permit Condition 3.6 limits the operation of the B&W and Erie City Boilers to demonstrate compliance with the emission limits.

New Permit Condition 3.7 outlines the recordkeeping to demonstrate compliance with the operating limits for the boilers.

Permit Conditions 3.8 and 3.9 have been renumbered from the existing Permit Conditions 2.11 and 2.12.

PUBLIC REVIEW

Public Comment Period

A public comment period will be made available to the public in accordance with IDAPA 58.01.01.209.05.c.

APPENDIX A – EMISSIONS INVENTORIES

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on January 20, 2017:

Facility Comment: Condition 2.3 - During the January 9, 2017 meeting with TASCO and IDEQ representatives, TASCO requested to further increase the annual beet slice limitation. TASCO proposed in the March 2016 PTC Application and the August 2016 Consent Order to increase the annual throughput to 3,700,000 tons per campaign year. Since that time, TASCO received new information about increasing crop yields and the associated estimated production throughput for future campaigns. TASCO requests an annual throughput of 3,852,000 tons per campaign year to allow for increased production that is anticipated from larger beet crops in Idaho. Updated emissions estimates for the mill vents are provided in Attachment #1.

As shown, a 352,000 ton slice increase to 3,852,000 tons results in a main mill VOC increase of 13.3 tons per year. For the original request of 200,000 tons slice to 3,700,000 tons, the estimated VOC increase was 7.6 tons/year. The higher annual slice increase is not significant and continues to be a minor modification consistent with the original request.

Attachment #1 also provides updated acetaldehyde and formaldehyde TAP's estimates for a slice increase to 3,800,000 tons. The table below provides a comparison of original and new TAP's estimates and predicted ambient impacts.

Aldehyde Emissions Estimates & Predicted Modeled Impacts

Slice Increase (tons)	Acetaldehyde			Formaldehyde		
	Rate (lbs/h)	Predicted (ug/m ³) ^a	AAAC (ug/m ³) ^b	Rate (lbs/h)	Predicted (ug/m ³) ^a	AAAC (ug/m ³) ^b
200,000	9.99E-2	0.0150	0.45	9.18E-4	1.3E-4	7.7E-2
352,000	1.76E-1	0.0264 ^c	0.45	1.62E-3	2.29E-4 ^c	7.7E-2

a Micrograms per cubic meter

b Acceptable ambient concentration of a carcinogen

c Estimated by multiplying the predicted impacts at 200,000 tons by 1.76

Estimated aldehyde ambient impacts for a 352,000 tons slice increase continue to only be a fraction of the acetaldehyde and formaldehyde AAAC's.

DEQ Response: The requested beet slice increase has been changed in the PTC. Emission increases have been incorporated into the tables in the Statement of Basis and the modeling group has reviewed the requested change.

Facility Comment: Conditions 2.5 & 2.6 - Conditions 2.5 and 2.6 were included in the August 13, 2014 PTC and applies to boiler coal firing thru the calendar year 2016. Since the boilers no longer fire coal then as described by DEQ in the draft SOB (pg. 17), Conditions 2.5 and 2.6 are obsolete and should be deleted.

DEQ Response: The requested change has been made because the boilers no longer fire coal and the monitoring was required only through calendar year 2016.

Facility Comment: Condition 3.3 Emissions Limits (Table 3.2) - The underlying PTC issued August 13, 2014 did not include emissions limits. Short-term boiler emissions changes are not expected to change as a result of this project and were not required to be addressed in the Minor PTC Modification request and PTC application. Therefore, the short-term emissions should be deleted from Table 3.2.

For long-term emissions, TASCO recommends that Table 3.2 include a combined limit for all boilers. This would allow for additional operational flexibility of the individual boilers including the Nebraska backup boiler. In addition, TASCO revised the footnote defining tons per year for this table to correspond to the reference in the SOB, Table 2 footnote (d).

The combined emissions from the Boilers (B&W, Erie City, Nebraska) shall not exceed any corresponding emissions rate limits listed in Table 3.2.

Table 3.2 Boiler Emission Limits^(a)

Source Description	PM₁₀^(b) T/yr^(c)	SO₂^(b) T/yr^(c)	NO_x^(b) T/yr^(c)	CO^(b) T/yr^(c)	VOC^(b) T/yr^(c)
Boilers	11.89	1.00	266.97	128.33	8.70

a In absence of any other credible evidence, compliance is ensured by complying with permit operating, monitoring, and record keeping requirements.

b Particulate matter with an aerodynamic diameter less than or equal to a nominal ten (10) micrometers, including condensable particulate as defined in IDAPA 58.01.01.006.

c Tons per campaign year, as defined in Condition 2.1.d B&W, Erie City and Nebraska

DEQ Response: The hourly emission rates for the boilers have been removed from the PTC because short-term boiler emission rates did not change as a result of this permitting action. Footnote (c) was revised to reflect the ton per year limit as defined as tons per campaign year in Permit Condition 2.1.

The annual emission limits will remain for the individual boilers. Compliance with a combined limit has not been demonstrated through an ambient analysis or through a PSD analysis that a combined emission limit would not cause a violation.

Facility Comment: Condition 3.7 - TASCO proposes to monitor and record the amount of fuel being used in therms per month and summing the monthly totals for the campaign to demonstrate compliance with Condition 3.6. Data regarding hours of operation is not needed to demonstrate compliance. TASCO suggests the following revision to Condition 3.7:

Condition 3.7 Boiler Operation Recordkeeping (B&W, Erie City, Nebraska)

The permittee shall monitor and record the combined amount of fuel used in the boilers (B&W, Erie City, Nebraska) in therms per month and summing the monthly totals for the campaign to demonstrate compliance with Condition 3.6.

DEQ Response: Permit Condition 3.7 has been revised to remove the hours of operation recordkeeping. Recordkeeping for the amount of fuel used is sufficient to demonstrate compliance with the operating limits for the B&W and Erie City boilers. The Nebraska Boiler is permitted under a separate PTC.

Facility Comment: Conditions 3.8 & 3.9 – These previous Boiler MACT requirements have been completed.

DEQ Response: Permit Conditions 3.8 and 3.9 are meant to demonstrate continuous compliance with Boiler MACT requirements even though the initial dates for compliance have passed. The facility still has to comply with all Boiler MACT applicable requirements.

Facility Comment: Pg. 13 of Statement of Basis - NSPS Applicability (40 CFR 60) - The Nebraska boiler which was installed at the facility in 2005 is subject to 40 CFR 60 Db requirements.

DEQ Response: The requested change has been made.

Facility Comment: Pg. 13 of Statement of Basis - MACT Applicability (40 CFR 63) - The Nebraska boiler is also subject to "Boiler MACT" requirements.

DEQ Response: The requested change has been made.

Facility Comment: Pg. 17 of Statement of Basis - Conditions 2.5 & 2.6 - As stated in the draft SOB, it is recommended that these conditions be removed from the draft PTC (see Draft PTC comments above).

DEQ Response: The requested change has been made.

Facility Comment: Pg. 17 of Statement of Basis - New Permit Condition 3.3 - As stated in the draft SOB, the purpose of emissions limits in Condition 3.3 are for PSD avoidance. As a result, this permit condition should only include annual emissions limits (see Draft PTC comments above).

DEQ Response: The requested change has been made.

APPENDIX D – PROCESSING FEE